

Distance-Tunable Electron Tunneling for Targeted Charge Transport Within a Data Processor

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Introduction

Although electron tunneling is a phenomenon which has been observed for many decades, particularly in ultra-cold layered materials featuring an oxide as the mediating layer, little progress has been made in harnessing tunneling effects to support enhanced computing. If the distance over which and direction in which electrons are projected through tunneling could be controlled, a thinking machine of maximal inter-connectivity could be created in which, importantly, the time required to transfer charge between transistors or memristors would be near-zero.

Abstract

In order to understand how electron tunneling might be controlled, one must understand what is truly at play in this phenomenon. As I've described in previous publications (ibid.,) quantum tunneling results from a decoupling of electrons from our field of view as a result of a transference of mass from the substrate to the electrons which results in a temporal displacement. The electron moves slightly backward in time, enabling it to effortlessly move through space as if through a vacuum. As the extraneous mass is shed, it re-integrates and again becomes visible, instantaneously arriving on the other side of the boundary.

Ultra-cold temperatures are required to achieve tunneling due to the relationship between magnetism and Higgs Bosons, which are created by protons and the flow of which is directed and extended by electrons under the condition that the discrete magnetism of those electrons can be nullified (namely, by extremely low temperatures and the cessation of electron spin.) Oxide layers have proven useful in prior experiments, however, this approach only creates a 1 in 500 chance of a tunneling event) because the placement of the oxygen atom puts an electron in close proximity to an electron in the neighboring non-oxide semiconductor layer. The combination of ultra-cold temperatures, an oxide layer and a slight differential of temperature and/or mass between the two sides creates a siphon of Higgs Bosons which flows from one side to the other, much as electricity flows between two sides of a thermoelectric plate. It is in this intermediary zone that mass may be transferred into an electron, affecting its temporal position relative to the surrounding matter and allowing it to achieve "tunneling."

As electrons pass through the oxide layer (in the traditional experiment,) the electrons take on additional mass bestowed upon it by the liberated bosons which, under these conditions, are not nullified by magnetism as they would be under ordinary conditions.

Problematically, the distance over which these tunneling effects have been observed is limited by the simple fact that once an electron is decoupled, it is no longer affected by the Higgs Field and quickly sheds the extraneous mass. None of the prior experiments have investigated the possibility of purposefully introducing magnetism into a thin portion of a thicker initial oxide layer in order to see if an already-decoupled electron may be made to remain in the tunnel over a greater distance through repeated bombardment with Higgs Bosons whilst already-decoupled.

Controlling the direction of the projected electron is a trivial matter as the initial momentum of the electron (or photon, as I will go on to explain) would determine its trajectory. However, if one wishes to extend and finely control the distance over which an electron is projected through quantum tunneling prior to re-integration, one needs to achieve two things: Firstly, the magnetism associated with a material must be nullified so that mass-carrying Higgs Bosons may be transferred from the the matter into the electrons. Secondly, Higgs Bosons must somehow be made to follow and interact with the electron even after decoupling has occurred so that re-integration may be prevented until the desired distance has been traveled. Projecting Higgs Bosons into the path of the electron (in a temporal context) could allow for any nominated amount of mass to be shunted into the electron, thereby allowing us to control the point of re-integration as extraneous mass in an electron is shed at a predictable rate.

In order to project electrons via tunneling over greater distances, a wider Higgs Amplification Zone would be required in which layers of this zone alternate between having a null magnetism and having standard magnetism. As one visualizes an electron moving through four-dimensional space, one would observe that the electron interacts only with vacuum after it is decoupled unless the Higgs Field is extended to the temporal region occupied by the electron after decoupling. Whereas magnetism is undesirable prior to initial decoupling (as this would prevent decoupling in the first place) magnetism would be desired; if we are to achieve our proposed goal; after initial decoupling as this would result in Higgs Bosons being shunted to the coordinates in four-dimensional space where the electron could be predicted to exist between the entrance and exit of the "tunnel." By sending Higgs Bosons to the correct spatial coordinates, the electron, although it would not be visible to us, would be met by additional mass carriers so that it could continue to travel through the tunnel over a greater distance. In prior experiments, distance has been severely limited because of the total lack of magnetism in the material brought on by low temperatures.

One would also require a mechanism for projecting an amplified Higgs Field into the target area. This is fairly straightforward and requires only that an element with a greater atomic weight be adjacent from an element with a lower atomic weight and that there be some quantity of electrons at the boundary in order to generate a siphon effect (and, of course, that magnetism be nullified.)

So as not to limit the number of trajectories for projection, I propose that a self-sustaining ultra-cold mechanism as described in 11 July 2023 be utilized so that we may enjoy, without the need for onerous cooling equipment, the

desired zero-magnetism environment whilst retaining the freedom to project electrons via tunneling in any direction we nominate.

As the proposed function requires that electrons be passed through a zone through which a Higgs imbalance is attempting to correct itself, *one would, in actuality, have to pass electrons between two different, insulated, ultra-cold nodes composed of two different materials*, one with a greater atomic weight than the other. In order for those mechanisms to function as prescribed in 11 July 2023, each node must, individually, be composed of but a single type of material. Thus, two nodes are required wherein each node is composed of a material of differing atomic weight. The pair of nodes should exist in an atmospheric vacuum as all potential sources of ambient magnetism must be eliminated. Only the specialized, tunable magnetic curtain placed between the two nodes would introduced magnetism and even this would only introduce magnetism to a physical area forward of the point of decoupling.

Photons can and, likely, must be used in place of electrons; because of the amplified Higgs field, the photons could be expected to arrive at their destination as electrons despite beginning as photons. This is an expected phenomenon as described in this author's concept for a photon-to-electron converter of 100% efficiency as described in 20 May 2025. Whereas that mechanism works by using strong magnetism to slow light, this mechanism relies upon Higgs amplification in a limited area coupled with null magnetism in order to ensure conversion. This would provide better directional control and would eliminate the problem of the discrete magnetism of the atoms making up an electrical conducting wire of any sort. In fact, realizing such an effect would be absolutely necessary in order to achieve the proposed goal as we must control both the direction and the length of the "tunnels."

In addition to this mechanism, a sub-mechanism would be required in the space between the two nodes which would introduce one or more nanoscopically-thin curtain or curtains of magnetism which would ensure that the Higgs Field is periodically present at the correct coordinates of the electron (in four dimensions) in order to provide a sufficient supplementary boost to mass to ensure projection over the correct distance. The number of these curtains or their thickness would be used to control the precise projected distance, as could the frequency of the initial light pulse. Low-frequency photons have more mass than high-frequency photons and, therefore, an element of frequency-control would be useful for fine-tuning the spatial coordinates at which the electrons would re-integrate.

Conclusion

The phenomenon of quantum tunneling of electrons can be exploited and controlled in order to allow for the controlled teleportation of current via tunneling effects and their reliable, predictable emergence in desired spatial areas in support of unconventional modes of computational function.